CLAIMS

What is claimed is:

1. A heat exchanger fin for a vehicle, comprising:

a plurality of louvers spaced apart, the spacing of adjacent louvers defining a gap therebetween, at least one of the plurality of louvers being a vortex generator louver provided with at least one mini-vortex generator,

the mini-vortex generator being a protuberance extending from an outer edge of the vortex generator louver, the mini-vortex generator generating a pair of counter-rotating vortices in a fluid as the fluid encounters the mini-vortex generator.

2. The heat exchanger fin of claim 1, wherein the proportion of vortex generator louvers to non-vortex generator louvers is between about 20% to 50%.

3. The heat exchanger fin of claim 1, wherein the mini-vortex generator louver is positioned towards the front of the fin facing the incoming fluid.

4. The heat exchanger fin of claim 1, wherein the vortex generator louver includes two or more mini-vortex generators spaced apart by about 1 mm.

5. The heat exchanger fin of claim 1, wherein the protuberance is inclined at an angle relative to a planar portion of the vortex generator louver.

6. The heat exchanger fin of claim 1, wherein the angle is between about 30° and 45°.

7. The heat exchanger fin of claim 1, wherein the protuberance has a triangular shape with a base and a length.

8. The heat exchanger fin of claim 1, wherein the width of the base and the length are about equal.

9. The heat exchanger fin of claim 8, wherein the width of the base and the length are less than about 1mm.

10. The heat exchanger fin of claim 9, wherein the width of the base and the length are about 0.4 mm.

11. The heat exchanger fin of claim 1, wherein the length of the louvers is between about 6 mm to 10 mm.

12. The heat exchanger fin of claim 1, wherein the width of the louvers is between about 0.8 mm to 1.5 mm.